

CLAIMS:

1 1. A computer system comprising:
2 a host computer having a CPU;
3 a mass data storage device associated with said host computer;
4 at least some ECC hardware associated with said mass data
5 storage device;
6 and a device driver comprising software instructions for
7 execution by said CPU for performing at least some ECC instructions
8 on data read from said mass data storage device.

1 2. The computer system of claim 1 wherein said mass data storage
2 device is a hard disk drive assembly.

1 3. The computer system of claim 1 wherein said host computer
2 further comprises a RAM and wherein said at least some ECC
3 instructions are performed upon read data contained in said RAM.

1 4. The computer system of claim 1 wherein said at least some ECC
2 hardware associated with said mass data storage device includes
3 hardware to generate data integrity determination information when
4 a block of data is written to said mass data storage device.

1 5. The computer system of claim 1 wherein said at least some ECC
2 hardware associated with said mass data storage device includes
3 hardware to generate an error flag if an error is detected in said
4 data read from said mass data storage device.

1 6. The computer system of claim 5 wherein said software
2 instructions for execution by said CPU perform data correction on
3 data read from said mass data storage device using said ECC code
4 when said error flag has been generated.

1 7. A computer system comprising:

2 a mass data storage device containing a data medium and having
3 associated ECC circuitry for generating an error flag indication of
4 the occurrence of an error in data read from said data medium;

5 and a host computer having at least a RAM, a CPU, and a
6 facility for executing ECC instructions by said CPU;

7 wherein execution of said ECC instructions corrects in said
8 RAM data read from said medium according to said ECC codes when
9 said error flag has been generated.

1 8. The computer system of claim 7 wherein said ECC instructions are
2 software instructions of a device driver.

3 9. The computer system of claim 7 wherein said ECC instructions are
4 software instructions of a system BIOS.

5 10. The computer system of claim 7 wherein said ECC instructions
6 are software instructions of an expansion BIOS.

7 11. The computer system of claim 7 wherein said ECC instructions
8 are software instructions of a device driver extension.

9 12. The computer system of claim 7 wherein said ECC circuitry
10 determines the presence of an error in said read data from data
11 integrity determination information previously generated from said
12 read data.

13 13. A method for operating a computer system having a host computer
14 and an associated mass storage device, comprising:

15 reading data from said mass storage device, said data having
16 been previously processed to include an ECC code to facilitate
17 subsequent error detection and correction;

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6 detecting an error in the read data in hardware on said mass
7 storage device using said ECC code, generating an error flag
8 identifying the error using the ECC code;
9 transferring said read data and said error flag from said mass
10 storage device to a memory in the host computer;
11 and correcting said error under control of a CPU of said host
12 computer.

1 14. The method of claim 13 wherein said transferring includes
2 transferring error location information.

1 15. The method of claim 13 wherein said correcting said error
2 comprises executing software instructions of a device driver by
3 said CPU.

1 16. The method of claim 13 wherein said correcting said error
2 comprises executing software instructions of a device driver
3 extension.

1 17. The method of claim 13 wherein said correcting said error
2 comprises executing software instructions of a system BIOS.

1 18. The method of claim 13 wherein said correcting said error
2 comprises executing software instructions of an expansion BIOS.

1 19. The method of claim 13 further comprising generating an ECC
2 code to facilitate subsequent error correction with hardware in
3 said mass data storage device.

1 20. A method for performing error correction in a computer system
2 having a host computer and an associated mass storage device,
3 comprising:

4 reading from said mass storage device data which has been
5 previously processed to include an ECC code to facilitate
6 subsequent error detection and correction;

7 detecting an error in the read data in hardware on said mass
8 storage device using said ECC code, generating an error flag
9 identifying the error using the ECC code;

10 transferring said read data, said error flag, and said
11 location code from said mass storage device to a memory in the host
12 computer;

13 and correcting said error under control of a CPU of said host
14 computer.

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1 21. The method of claim 20 wherein said transferring includes
2 transferring error location information.

3 22. The method of claim 20 wherein said correcting said error
4 comprises executing software instructions of a device driver by
5 said CPU. .

6 23. The method of claim 20 wherein said correcting said error
7 comprises executing software instructions of a device driver
8 extension by said CPU.

9 24. The method of claim 20 wherein said correcting said error
10 comprises executing software instructions of a system BIOS by said
11 CPU.

12 25. The method of claim 20 wherein said correcting said error
13 comprises executing software instructions of a system BIOS
14 expansion by said CPU.

